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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,902	12/02/2003	Shinichi Gayama	041514-5315	2419
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DRINKER BIDDLE & REATH (DC)			WARREN, DAVID S	
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Please find below and/or attached an Office communication concerning this application or proceeding.

21/

Office Action Summary	Application No. 10/724,902	Applicant(s) GAYAMA, SHINICHI	
	Examiner David S. Warren	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/02/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/2/03; 4/30/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1, 9, and 10, the Applicant's use of the word "searching" appears to contrary to common meaning. The Applicant's specification defines "searching" as inputting data (see paragraphs [0078] and [0086]) using a microphone (paragraph [0078]). The Applicant also refers to "searching a music piece" (paragraph [0010]). Also, in claims 1, 9, and 10, it is not understood as to what is meant by "search output corresponding to a result of the similarity degree" – this is inconsistent with how the Applicant uses "searching" in a previous limitation. How can "searching" generate both an input (as defined in Applicant's specification) and an output after comparing. In claim 3, "the attribute" is without antecedent. A chord attribute can be virtually anything, e.g., volume, duration, effect, quality (minor, major, diminished, etc.), function, intensity, name, inversion, timing, etc. Also in claim 3, it is not clear as to how the "ratio of time lengths" is used. The Examiner cannot understand why (or how) ratios of time can be used to compare two chord progressions. For example, two beats of A major followed by two beats of D major would have the same

ratio as one measure of A major followed by one measure of D major. These progressions also have the same amount of root movement and "attribute" - yet these two progression are different. It would appear that Applicant's claimed invention could not distinguish between these two progressions. In claim 4, it is not clear as to how anything can "temporally jump back and forth." This implies going back in time, which, of course, is impossible. In claim 5, it is not clear as to how a chord can be represented by "chord progression data." It appears that the Applicant is representing each chord by a chord progression. The reverse would be more likely. Clarification is required. Also in claim 5, it is not clear as to how (or why) two chords that have a related key, they would then be regarded as the same chord. First, it is not clear as to what is meant by related key – typically, each major key has a related minor key, e.g., the key of C major is related to the key of A minor. But why would, say, B minor 7 flat 5 (in C major) be considered the same chord as F major (in the key of A minor)? All the chords in the key of C major are also within the key of A minor – but the Examiner does not understand why all those chords would be "regarded as the same chord"? In claim 6, it is not clear as to how any apparatus for detecting chord progressions can have only two candidates used to compare (there are many thousands of possible chord progressions and hundreds of possible chords). It is also not understood as to what is meant by "mutually compares." The Examiner is interpreting this as if "mutually" were omitted from the language since it appears (from the specification) that the partial music data is compared with the chord progression data. Also in claim 6, how can a chord be a candidate for a transition point? The Examiner (as interpreted from the specification)

gleans that the transition point is this transition between chords, not the chords themselves. So how then can a chord represent this transition (much less two candidate chords)? Finally, what purpose do the “candidates” server? It appears that for each progression there are two candidates. How can a stored chord have two candidates? How can an input chord progression have two candidates? Claims 7 and 8 also refer to “candidate chords.” Clarification is required. Regarding claims 7 and 8, it is not understood as to what is meant by “smoothing... trains of ...first and second chord candidates repeatedly detected...” No explanation is given as to what is meant by a train of chord candidates. Does train mean progression? Or library of possible chord candidates? For the rejection that follows, the Examiner is interpreting “train” to mean “progression.” Also in claims 7 and 8, it is not understood as to what is meant by “representing a level of a frequency component at predetermined time intervals.” For the rejection below, the Examiner is interpreting “frequency component” to be equivalent to pitch. Thus, this appears to be a representation of pitch intensity over time. Clarification is required. Finally, in claims 7 and 8, it is not understood what is meant by “total level.” The word “total” implies partial levels were, e.g., added to make the total. The Examiner understands how frequency levels can be used to determine a chord, but the use of “total” levels, obfuscates this understanding. Does the Applicant add the three frequency components? The wording of these claims implies that the three frequency components are formed of yet further components. What are these further components?

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 6, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Weinstock (6,166,314). Regarding claims 1, 9, and 10, Weinstock discloses the use of a storing device for storing a first chord progression (406, fig. 4; col. 6, lines 31 – 36), a searching data producing device - as stated supra, the Applicant has defined “searching” device as a data input device (see performance input device of figs. 1A and 1B), a comparator for comparing chord progressions (206, fig. 2) on the basis of changed root and attribute (see 504, 506, of fig. 5), and an output device (output stream, element 18, figs. 1A and 1B). Regarding claim 2, Weinstock discloses the use of a comparator changing positions (408, fig. 4; 604, fig. 6, changing measure and beat is deemed to be synonymous with changing position; col. 8, paragraph 5). Regarding claim 3, as best as can be understood (see §112 rejection supra), Weinstock discloses the use of comparing times (i.e., durations) and attributes (chord qualities, e.g., major, minor, augmented, suspended, etc.) – see col. 12. last paragraph, col. 8, lines 44 – 48). Regarding claim 4, as best as can be understood, timing is a standard part of comparing progressions and is shown by Weinstock in col. 12, last paragraph. Regarding claim 5, see §112 rejection supra, two chords in related keys can be

regarded as being the same. For example, F major in the key of C major, is the same as F major in the key of A minor (A minor and C major are related keys). Regarding claim 6, as discussed supra, this claim is extremely difficult to understand, as best as can be understood, the system of Weinstock accommodates any possible chord (at least two) – the Examiner defines “any possible chord” as a candidate.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinstock in view of Larson (5,440,756). Weinstock has been discussed supra with respect to independent claim 1 and dependent claim 6 (from which claims 7 and 8 depend). Weinstock discloses the use of a frequency converter and a component extractor for each tempered tone (the Examiner deems this to be synonymous with the “pitch-to-MIDI” converter as taught by Weinstock (col. 11, lines 5 – 7). Weinstock does not teach the use of comparing levels of components to compare chord progressions. Larson uses frequency levels (i.e., tempered pitches) to determine a chord (see figs. 10A – 10D; especially fig. 10D). It would have been obvious to one of ordinary skill in the art to combine the teachings of Weinstock and Larson to obtain a chord comparison

system using levels of frequency components to determine a chord. The motivation for making this combination is that by extracting frequencies, pitch names can be identified. Once pitch names are identified, the process of determining chords and ultimately chord progressions is simplified.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Fujishima (6,057,502), Taruguchi (6,380,474), Weinstock (6,107,559), Grubb et al. (5,913,259), Paulson (5521323), and Sitrick (6084168), are cited to show aspects of Applicant's invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on 571-272-2001 ext 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2837

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dsw


JEFFREY DONELS
PRIMARY EXAMINER